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TRANSNATIONAL CORPORATIONS IN THE COPPER INDUSTRY OF ZAMBIA

A Technical Paper*

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* This study was prepared for the Joint ECA/UNCTC Unit on Transnational Corporations by an ECA Consultant. The views expressed herein are those of the Author and do not necessarily represent the views of this organization.

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INTRODUCTION

1. The purpose of this study is to examine the activities of transnational corporations in the copper industry of Zambia with a view to determining

(a) the factors that regulate costs and benefits in the copper industry;
(b) the factors that determine the bargaining processes in this industry.

2. The study is based for the most part on information obtained from primary sources, including official documents relating to the copper mining industry in Zambia and available historical books on the country, which contain useful material on the industry. In order to supplement this information and to gather up-to-date data on recent activities concerning the mining industry in general and the copper industry in particular, various mining year books, annual reports and other official documents were examined and interviews were undertaken. With regard to the latter the method of inquiry found most suitable was the open-ended personal interview; use of a questionnaire would not have allowed for amplification of various issues, particularly in view of the technical nature of the subject.

CHAPTER I

THE DEVELOPMENT OF COPPER MINING IN ZAMBIA

3. Explorers, missionaries and traders had publicized the existence of copper in Central Africa by the end of the 1880s, at the time when Africa was being arbitrarily partitioned between the European powers. 1/ Through various agents, Cecil John Rhodes, after whom southern Rhodesia (Zimbabwe) and Northern Rhodesia (Zambia) were named, obtained mineral concessions from chiefs and as a result, claimed ownership of mineral rights in Zambia; his company, the British South Africa Company, retained these until the independence of the country in 1964. 2/

A. Historical perspective

4. In the early days, two types of prospectors predominated in the search for minerals: the first was the independent prospector, an intelligent, hard-working but not usually highly educated man with a sound knowledge of rocks and

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1/ H.M. Hole, The Making of Rhodesia (London, Macmillan, 1926) p.e.

2/ There have been many accounts of the ownership and legality of the right of the British South Africa Company to the minerals; see "British South Africa Claims to Mineral Rights," Government of Northern Rhodesia, White paper (Lusaka, 1964) and Muna Ndulo, Mining Rights in Zambia, University of Oxford, D. Phil Thesis (1976).

minerals. 3/ The second was frequently a public school failure from England, well-mannered but not particularly hardy, and though usually well equipped and with sufficient capital and other financial resources, not as a rule, knowledgeable about minerals, mining or the country in which he conducted business. 4/

5. Exploration companies paid the prospectors, particularly the second category, to search for minerals. They worked under the direct management of mining engineers and geologists; once they had reported finding a mineral, the actual digging was done by the companies. Hence the prospectors were largely concerned with locating ancient workings, obtaining, information from local people and following up their reports with field work. 5/ Brooks, one of the early prospectors in Zambia, has recounted that many inducements had to be paid to get local residents to disclose the whereabouts of old workings. 6/ Dr. Bancroft, who arrived in Zambia in 1927 to-take up a position as consulting geologist to the Anglo-American Corporation Ltd. and remained associated with copper mining in Zambia until his death in 1957, offered similar reports. 7/ The situation today is different. Most of the more evident deposits of minerals have already been discovered and prospecting has become more difficult. Consequently, prospectors today, are well-trained geologists who use modern scientific methods and are employed by the government and well-organised mining companies.

6. Prospecting for minerals in Zambia started as early as 1895, with the exploration of the Hook of Kafue on behalf of the Northern Copper Company. 8/ A first group made favourable reports about the possibility of minerals in the area but did not peg any claims. An 1897 expedition into the Kafue region did peg extensive claims. The Northern Copper Company was subsequently given a concession of some 500 square miles of copper bearing land. 9/ Another expedition in 1899 comprising experienced prospectors located a number of small copper mines in what was known as the Hook of Kafue. 10/

3/ C.J. Alford gives further description of prospectors in his book Mining Law of the British Empire (London, C. Griffin & Company, 1906) pp. 5-6.

4/ Ibid.

5/ P.F. Hone, Southern Rhodesia (London, G. Bell, 1909) p. 247.

6/ R. Brooks,"How the Northern Rhodesia Coppers were found" Northern Rhodesia Journal (1950) p. 42.

7/ J.A. Bancroft, Mining in Northern Rhodesia (London, British South Africa Co., 1961) p. 10.

8/ O. Barangwanth, "The First Copper Mines in Northern Rhodesia," Northern Rhodesia Journal, Vol. 5, p. 209.

9/ Ibid.

10/ Ibid.

7. An exploration organized in 1899 at the request of Cecil Rhodes and Robert Williams failed to find minerals in commercial quantities until it reached the headwaters of the Kafue, Luangwa and Mobile rivers adjoining the Congo watershed. 11/ The expedition located the Kansanshi copper mine, reportedly thanks to a local chief, Kapini Mpanga, who lived in its vicinity. 12/ After pegging the Kansanshi mine, the group explored the Katanga, finding many of the large deposits that are being worked in Zaire today. In fact, the first discovery made by these explorers in Katanga was the extremely rich carbonate deposit of the "Star of the Congo". 13/

8. It appeared at first that the larger and richer deposits were located on the Zaire side of the watershed, and attention was thus directed from Zambia at such levels that by 1906, over one hundred deposits had been found in Katanga. 14/ However, prospecting continued in Zambia. In 1902, the Davis group led an exploration organised by the manager of the Bechuanaland Exploration Company. It found the Bwana Mkubwa mine which is located a few miles from the Zaire border, as well as the Roan Antelope mine, which it pegged. 15/ The same group was largely responsible for tracing the insignificant surface indications which led to the discovery of the very rich Nchanga mine some twenty years later. In 1910, the local British Commissioner, making his way through an area known to be mineralized, stumbled across a lonely green outcrop, which turned out to be Nkana, one of the greatest deposits in the country. 16/

B. Advent of transnational corporations in the copper industry

9. In the 1920's, the British South Africa Company created by Cecil Rhodes adopted a change of policy. It decided to grant exclusive prospecting rights over large areas to companies with the financial resources required to undertake major prospecting programmes. Existing claims that had been pegged and registered were excluded from these concessions. 17/ Although they were renewable and carried minimum expenditure obligations licences were for specified periods, and conveyed the right to prospect and peg mining locations and special grant areas for detailed exploration and development. The British South Africa Company retained the right to take up a portion of fully paid-up shares in the concession companies. The decision to issue major exclusive prospecting licences resulted in the systematic exploration of the greater part of the country, but an inevitable consequence was the discouragement of the small prospectors. 18/

11/ F.L. Coleman, The Northern Rhodesia Copper Belt 1899-1962 (Manchester, Manchester University Press 1971) p. 6.

12/ J.A. Bancroft, op. cit., pp. 57-59.

13/ Ibid.

14/ F.L. Coleman, op. cit., p. 9.

15/ R. Brooks, op. cit., p. 48.

16/ J.A. Bancroft, op. cit., p. 30.

17/ R. Brooks, op. cit., p. 44.

18/ Ibid.

10. The British South Africa Company believed that exclusive rights were an indispensable condition of large scale company prospecting, since this required both time and security. It is useful to mention that the chartered company's grants would have been of no avail but for the interest shown by two of the most influencial figures in world mining at the time, Alfred Chester Beatty and Ernest Oppenheimer. 19/ Each of these men played a major part in financing the concession companies that carried out the first great prospecting campaign. In fact, as will be shown later, by 1928 the important mining properties had effectively been divided between Oppenheimer's Anglo-American Comapny and Chester Beatty's Rhodesia Selection Trust.

11. The first of the exclusive licences was granted in December 1922 for an area of 50 000 square miles to Copper Ventures Ltd., a comparatively small company founded in 1921 to promote the use of the Perkins process in the treatment of copper ore. These concession rights were acquired by Rhodesia Congo Border Concession Ltd. in 1923, a group comprising Minerals Separation Ltd., Chester Beatty, an American engineer, an English engineer, and a former general manager of the Union Minière du Haut-Katanga in Zaire. 20/ The latter suggested that Minerals Separation Ltd. organise prospecting in the region to see if Katanga-type deposits of rich carbonate ores could be found on the Zambian side of the boundary. An application was made to and accepted by the British South Africa Company for an exclusive prospecting concern, to be held by Copper Ventures Ltd., in an arbitrarily selected area of 2 000 square miles surrounding Nkana and extending East to the Bwana Mkubwa holdings.

12. In 1923, Copper Ventures Ltd. obtained prospecting rights over a second area of 13 000 square miles in the central part of the country, with Rhodesia Minerals Concession Ltd. acting as operating company. In the following year, Copper Ventures Ltd. was granted prospecting rights in the Nkana concession. It subsequently disposed of the Nkana claims which it had purchased in 1922 and of its rights in the Nkana concession to the Bwana Mkubwa mining company. Roan Selection Trust later made an arrangement with Bwana Mkubwa to take over the prospecting of Nkana concession, thereby ultimately disclosing the sulphide ore bodies of Mufulira and gaining control of it.

13. In 1923 an insignificant occurence of copper-stained peaty soil at Mufulira was noted by the Rhodesia Congo Border Concession Ltd. 21/ Initial follow up work was undertaken by the Bwana Mkubwa mining company which, in 1926, ceeded its rights in the Nkana Concession to the Selection Trust group. The Roan Antelope claims were sulphide ore which had been proved to underlie a cropping of oxides. The Bwana Mkubwa mining company, influenced by the possible significance of the

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19/ Ibid.

20/ Ibid.

21/ Ibid., p. 48

sulphide mineralisation at Roan Antelope, retained a one third interest in the Nkana concession; by virtue of this interest, Anglo-American subsequently obtained a share in the development of Mufulira. By the 1920s it had also been recognised that the typical copperbelt mineralisation was stratigraphically controlled. The Selection Trust geologists therefore set out to map the concession systematically and peg special grants to protect those areas underland by the suboutcrop and down-dip extensions of the potential ore-bearing horizon.

14. Three major prospecting licences covering a total of 85 000 square miles were granted in 1925 to Luangwa Concessions Ltd., Serenje Concessions Ltd., and Kasempa Concessions Ltd.; in 1928 the operating companies merged as Luangwa Concessions Ltd., with Anglo-American as managers and consulting engineers. 22/ The Anglo-American Corporation which had taken a financial participation in Rhodesia Congo Border Concession and Bwana Mkubwa, decided in 1926 to offer full backing to the Rhodesian enterprises. This enabled Minerals Separation to have the necessary finance to carry out development and prospecting on the required scale.

15. Between 1926 and 1940, a major exploration campaign was mounted by most of the companies in the field. It is estimated that a total of 166 geologists and 34 prospectors were employed during this period. 23/ Perhaps the most important single discovery resulting from this campaign was the finding of the first mineralized outcrops (the River Lode) in the Nchanga area. In 1926 Nchanga Copper Mines Ltd. was registered to develop the Nchanga prospects; drilling and development continued until 1931, by which time it was apparent that a major group of ore bodies had been discovered. In 1924, the copper-stained outcrops in the Chililabombwe stream north of Nchanga were recorded by geologists of Rhodesia Congo Border Concession Ltd., and follow-up prospecting between 1928 and 1931 led to the discovery of the Bancroft ore bodies.

C. Modern techniques of prospecting

1. Air prospecting and other methods

16. Until the 1920s, prospecting techniques could only locate ore bodies with some surface expression; because the methods were systematic, however, the probability of overlooking potential ore bodies was minimal. By the late 1920s, geologists began using sophisticated methods of testing reported mineral occurances. Air photography was first used as a prospecting tool in Zambia by the Rhodesia Congo Border Concessions Ltd. 24/ In 1926, the company contracted out a 12 000 mile flying programme in an attempt to locate copper clearings. Geophysical, or electrical methods of prospecting, proved their value at Mtuga, where a group

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22/ Ibid.

23/ M. Bostock and C. Harvey, eds., Economic Independence and Zambian Copper, a case study of Foreign Investment (New York, Praeger 1972), p. 58.

24/ Ibid.

of companies located relatively small, undiscovered ore bodies in the Mkushi District; an attempt to use the same techniques on the copperbelt in 1926 failed probably due to the fine-grained disseminated nature of the mineralization. The Nkana ore body, which had no surface expression, was discovered in 1924 as a result of systematic pitting and drilling of a "copper clearing". The nearby outcrop of the Mindolo ore body was discovered in 1927. Teams operating under the overall control of Raymond Brooks discovered the exceptionally high-grade ore body in 1928. 25/

17. In the 1950's, prospecting extended to outside the copperbelt area. The greater part of the country was held under exclusive prospecting licences, with a majority held by subsidiaries of the Anglo-American and Roan Selection Trust companies. The Rio Tinto organization was also involved extensively during this period. 26/ The De Beers Consolidated Company Ltd. was actively concentrating on reconnaissance, prospecting for diamonds in overlapping licence areas. Also during the 1950's, geochemical methods were developed for prospecting in tropical terrains, largely as a result of research undertaken in Zambia by the Geochemical Research Centre of the Imperial College of London in association with Roan Selection Trust Ltd. and Anglo-American Ltd. This method is said to be very effective in the central African environment and remains the most widely used prospecting method today. The Rio Tinto group claims that Sebembere, a prospect near Kabwe, is the first mine to have been discovered in central Africa using geochemical methods of exploration. More recently Kalenga and Luwana were also discovered using this method. 27/

2. Geological Survey

18. A geological survey was founded in Zambia in 1950 under a grant from Colonial Development and Welfare Funds. Its first priority was to begin compiling a geological map of Zambia; the Ministry of Labour and Mines however, became progressively more involved in prospecting, largely due to the ever-increasing demand for industrial minerals and building materials. In 1962, an Economic Unit was established to perform these functions and to prospect mineral occurrences that companies regarded as not warranting large-scale exploration and development. The purpose was thus to complement rather than overlap the field of interest of mining companies. In 1969, the Geological Survey was engaged in a major prospecting programme as a joint project with a United Nations Development Fund team in a 15 000 square mile area west of Lusaka and Kabwe. The programme included an extensive airborne electromagnetic survey using a comparatively recently developed techniques (INPUT), which had not been used in central Africa at the time the project planned in 1966. 28/

25/ Ibid.

26/ Ibid.

27/ Ibid.

28/ Ibid., p. 63.

3. New Licences

19. The Government changed the mining law relating to prospecting in 1969, revoking all previous and issuing new prospecting licences. 29/ Two significant factors have emerged since then: first, increased numbers of companies of different nationalities in addition to Anglo-American and Roan Selection Trust are involved in prospecting, and second, instead of confining prospecting to the copperbelt, the new licences cover the entire country. 30/ This was not possible in the past, because by the late 1950s, the British South Africa Company had awarded exclusive grants to Anglo-American and Roan Selection Trust for the major part of Zambia.

20. Since 1969 the Government has granted licences in several parts of the country. In the North-Western Province, Anglo-American has taken three prospecting areas at Kansanshi, Kangashi and Lunga North. Roan Selection Trust has taken out three areas at Mukimbeji, Kalumbila and Katengwa. Sidco, a Yugoslavian prospecting company, has an area of over 1 000 square miles at Mulinanshina. Somiren, an Italian firm has a huge area of 24 000 square miles to prospect for uranium and a smaller area in the Mwinilunga district to prospect for copper. Suico, a Japanese-American consortium, has a very promising prospecting area near Solwezi and Geomin, a Rumanian Comapny has two areas, one at Ntambu in the protected Luanda forest area and another around Kasempa. 31/

21. On the Copperbelt itself, a number of prospecting areas have been allocated to the Anglo-American Corporation (1), the Roan Selection Trust (6), Sidco (3), Somiren (3) and Suico (1). In the eastern and central provinces, various companies including Equitex Petroleum Ltd. and De Beers Consolidated Limited have taken up prospecting licences.

D. Other developments in the mining industry

22. Mining could never have emerged from its experimental stage without the advent of rail transport to carry machinery, fuel and ore. Early transport consisted of human porters, who could carry a maximum of 40 to 50 lbs per man. 32/ The history of mining in Zambia is thus linked to the development of the railroad. In 1897, Bulawayo was connected to the South African system, and during the first decade of the present century the bulk of the southern links were completed. The extension of the railway from Bulawayo to Wankie was finished in 1903 and by 1904, reached the Victoria Falls. In 1906 it had extended to Kabwe, where mineral deposits were thought to be appropriate for immediate exploitation and in 1909, the Rhodesian system linked up with the Congo's rail network.

29/ Mines and Minerals Act of 1969, Chapter 329 of the Law of Zambia.

30/ K. Kaunda, "Take up the Challenge," Zambian Information Services, (1970) p. 23.

31/ Ibid.; pp. 23-24.

32/ M. Gelfand, Northern Rhodesia in the days of the charter, (Oxford, Basil Blackwell, 1961) p. 108.

23. The object of connecting the Congo and Zambia was to obtain cheap coke from Wankie for the Congo copper mines. 33/ The oldest of these is Bwana Mkuka. Early work disclosed rich oxide ores of copper, extending in places to a depth of 160 feet. The mine was closed in 1905 until the arrival of the rail line in 1909. 34/ The Kansanshi mine, situated south of the Zambia-Zaire border, was developed and in 1908 produced its first 50 tons of copper. Work, however, was suspended when the war broke out and resumed in 1927. 35/ In 1910, the Bwana Mkubwa Copper Mining Company was formed to take the mine by the same name, which had closed in 1905. In 1912, a 90-ton per day gravity concentrator was erected on the southern side of the Kopje to treat the high-grade oxide ores. The plant operated for one year, but closed down because of the low price of copper prior to the First World War, and because the concentrator was neither effective nor profitable.

24. Between 1913 and 1923, more progress was being made in copper mining in Katanga than in Zambia, essentially because the earliest discoveries of ore were known to be richer in the former than in the latter. Zambian oxide ores averaged only 3 to 5 per cent copper content; ores as rich as these were going on the dumps as waste in Katanga. Later, sulphide ore bodies averaging a copper content of 3 to 6 per cent or more were discovered on the Zambian side of the border. 36/

25. Minerals Separation Limited was attempting to ascertain whether the lower grade of ore in the mines could be treated by flotation. In January 1918, tests demonstrated that a recovery of 77.5 per cent could be obtained from ore assaying over 4.25 per cent copper, but gave no indication of how the average grade of ore would respond. Concession companies that held exclusive prospecting rights to considerable areas then began scientific exploration of their areas. They found that the deposits in Zambia were not as visible as those of Zaire, 37/ but could only be discovered by expensive and repeated modern drilling operations. In addition, unlike the deposits in the Katanga which remained oxidised to the lowest depth mined, the deposits in Zambia entered a sulphide zone at a depth of about one hundred feet. 38/

26. This last discovery changed the outlook for Zambia. Sulphide ores of 3 to 5 per cent copper were enormously profitable, whereas oxidised ores of similar grade were almost valueless. In 1927, Roan Antelope Copper Ltd. was formed as a separate firm with majority of American capital. Development of the mine and construction of the surface plant began immediately. The Bwana Mkubwa company discovered in 1927 that Nkana had valuable sulphide ores.

33/ L. Wienthal, ed. The Story of the Cape to Cairo Railway Route (1923) (4 vols.; London, British South Africa Comapny, 1954).

34/ J.A. Bancroft, op. cit.

35/ Ibid.

36/ F.L. Coleman, op. cit.

37/ Ibid.

38/ Ibid.

27. The company continued to investigate the resources of the area by means of drill-holes until 1929, when it was clear that sufficient reserves existed to justify commercial working, development of the mine and construction of a surface plant. In order to finance the great expenditure at Nkana and to provide for a closer working situation between it and the Nchanga, mine the Bwana Mkubwa Company, the Rhodesian Border Concession and the Nchanga Copper Mines analgamated in 1931 under the name of Rhokana Corporation. 39/

28. By 1930, the copperbelt of Zambia was experienced a construction boom. Apart from the zinc, lead and vanadium mine at Kabwe, there were copper mines at Bwana Mkubwa, Roan, Nkana, Mufulira, Nchanga, Chambeshi and Kansanshi, all either producing or under development. 40/ In 1926, most of the large producers of copper united and formed an organization known as Copper Exporters Incorporated; its aim was to eliminate speculation and to stabilize the price of copper, 41/ which had fallen tremendously. This was partly due to expansion of the world's capacity. American producers began to restrict supplies and steadily forced prices up, but this restrictive policy encouraged the expansion of supplies elsewhere. Copper users, on the other hand, became unable to pay the high prices and started experimenting with substitutes such as aluminium. As a result, huge stocks of copper accumulated in producing states; prices dropped in the 1932 world economic depression, causing 95 per cent of the copper companies in the world to work at a loss.

E. Rise in the oligopoly power of transnational corporations in the copper industry

29. The growth in monopolistic power of TNCs in the copper industry in Zambia presents an interesting study. In a first step, the early practice of granting exclusive prospecting and mining rights to TNCs assured them a dominant role in the nascent industry. Subsequent involvement in the twentieth century by the governments of the United States and Britain in TNC operations, in control of supply and, through taxation, of imports strengthened the dominant position of TNCs. Economic and historical developments through the 1960s also contributed to assuring TNCs a monopoly over the copper industry in Zambia.

39/ M.J. Davis, Modern Industry and the African 2nd ed., (London, Frank Cass, 1967) p. 143.

40/ Ibid.; p. 157

41/ Ibid., p. 144

30. Despite temporary success by companies such as Rhokana Corporation at making profits, the world depression of 1932 brought the price of copper down so low that no mine could meet its financial obligations. A conference of the majority of copper producers had already agreed in November 1930 to curtail production, 43/ but stocks increased and prices continued to fall. The agreement did not immediately affect Zambian mines, as a number of them were still in the development phase; however, it did slow their rate of growth. In June of 1932, Zaire (the Congo Belge), Chile and other copper companies withdrew from Copper Exporters Incorporated, which resulted in the immediate collapse of the association. The withdrawal coincided with a United States Government duty of four cents on copper, imposed on imports to protect high-cost American producers from competition with cheaper metal. 44/

31. From the late 1930's to the late 1970's, the copper ores in Zambia were mined by only two company groups, Anglo American Corporation Ltd. of South Africa and Roan Selection Trust Ltd., a company with substantial participation of American Metal Climax Ltd. In addition, these groups later purchased three copper refineries, Mufulira, Ndola and Rhokana. The same two groups held the right to prospect and develop the "exclusive" rights and special grants areas and thus controlled between them nearly all prospective copper-producing territory. There are various links between the companies.

32. Anglo-American Corporation has minority interests in the stock of the Roan Selection Trust mines, Mufulira, Chibuluma and Chambeshi. The two producer groups jointly controlled and still have interests in the Zambia Congo Border Corporation Limited, one of the main suppliers of electricity to the mines.

33. The mines in Zambia continued to grow throughout the thirties and by 1935 accounted for some 10 per cent of non-Communist world production. By 1938, Zambia was the fourth largest producer of copper in the world. The outbreak of the war in 1939 marked a turning point in the development of the copperbelt, as it removed all fears of market demand. The British government in particular placed importance on the Zambian industry in relation to war preparations. 45/

43/ Ibid., p. 149.

44/ K. Warren, Mineral Resources (Harmondsworth, Middlesex, Penguin Books 1973), p. 142.

45/ R. Murray Hughes, "Mining in Northern Rhodesia Review Article", 1963, Northern Rhodesia Journal, p. 346.

34. The immediate effect of the war was demand by the British government for copper well in excess of production capacity. This is one indication of direct involvement of the government in transnational corporations (TNC) activities in Zambia. It was to support the war effort that Britain advanced funds to the Nchanga mine to develop Nchanga West. Other mines also increased their output, with all production contracted for the British Government. Following the war and despite fears of a slump, the industry entered an era of unparalleled prosperity. During this time, the price of copper rose to an all-time high in 1955 before dropping in 1957.

35. There were many reasons for this phenomenon, including post-war reconstruction and industrial expansion, particularly in the field of electrical goods. The "cold war", which made continued rearmament by the major powers necessary, and the corollary need for stock-piling provided further incentives to increase production and led to the opening of new mines.

36. The declaration of independence of Rhodesia affected independent Zambia's copper industry, particularly in the areas of deliveries and availability of coal. 46/ To resolve the energy problem, a coal field at Ukandabwe near Lake Kariba and, subsequently, better quality fields at Maamba were developed. In 1968, major expansion programmes took place with Japanese financing. Other developments in the copper industry during 1968 were announcements by Roan Selection Trust that the capacity of Mufulira, the second largest underground copper mine in the world, was to be increased. 47/

37. At independence the mines were owned by companies and shareholders outside Zambia; the very right to mine was outside government control. The Zambian leadership questioned the legality of ownership of mineral rights, and research strongly supported the contention that the treaties on which the ownership was based would never have been supported in a Court of Law. 48/ Negotiations between Zambia, Britain and the British South Africa Company over the transfer of the mineral rights to Zambia continued without agreement until the government seized the rights.

46/ The Border was closed.

47/ Colin Legum and John Drysddle, Africa Contemporary Record 1968-1969 (London, Africa Research Limited).

48/ "The British South Africa Company claims to Mineral Rights," Government of Northern Rhodesia, White Paper, 1964.

38. As a comparison, Zaire, which became independent in 1960, achieved national ownership of the country's mining industry in 1966. In June 1969 the Chilean government announced its programme of negotiated nationalization of the country's American-owned copper mines.

39. In Zambia, following seizures, the government owned the mineral rights, but with important exceptions. The British South Africa Company had been granted mining concessions in the most promising areas of the country in perpetuity and the paramount chief of Barotseland held rights in his own area. The government could do nothing to promote prospecting or mining in these areas, nor did it have control over any mining operations that might develop at the companies discretion. In August 1969 the Zambian government nationalized all mining rights and asked the owners of existing mines to offer 51 per cent of their shares to government. 49/ A new order for the mining industry ensued. The mining companies were reorganized into Nchanga Consolidated Copper Mines Ltd. (NCCM), and Roan Consolidated Mines Limited (RCM). Two classes of shares were created, with "A" ordinary shares representing 51 per cent of the issued capital of N.C.C.M. and R.C.M. held by the State-owned Zambia Mining and Industrial Corporation Limited. N.C.C.M. "B" ordinary shares, which constitute 49 per cent of the company's issued share capital, are held by Zambia Copper Investments Holdings Ltd. R.C.M.'s "B" ordinary shares are held by Roan Selection Trust International Incorporated, a wholly-owned subsidiary of Amax (20.43 per cent), Security Nominees Limited (12.25 per cent) and the public (16.32 per cent). 50/

40. Roan Consolidated Mines and Nchanga Consolidated Copper Mines Ltd. are expected to merge in 1983, as a result of government request to nationalize their operations, 51/ to become Zambia Consolidated Copper Mines Ltd. Under the terms of the merger agreement, Roan Consolidated Mines Ltd. will acquire the whole issued share capital of Nchanga Consolidated Copper Mines Ltd. from its two shareholders, Zambia Industrial Mining Company and Zambia Copper Investments Ltd. The latter is a holding company for Anglo-American. Following this Nchanga Consolidated Copper Mines operations and assets will be transferred to and its liabilities assumed by Roan Consolidated Mines Ltd. The enlarged share capital will be held at approximately 57.8 per cent by existing shareholders of Nchanga Consolidated Copper Mines Ltd. The share capital of Zambia Consolidated Copper Mines Ltd. will be held by Zambia Mining and Industrial Corporation Ltd. (100 per cent of "A" ordinary shares, Zambia

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49/ K. Kaunda, "Towards Complete Independence", p. 36. The Matero Speech, 11 August 1969 (Lusaka, Zambia Information Services, 1969).

50/ See Master Agreements and Mines Acquisition (Special Provision) Act 1970.

51/ This has been announced by the President of Zambia.

Copper Investments Ltd. (68.6 per cent of "B" ordinary shares), Roan Selection Trust (17.4 per cent of "B" shares), United Kingdom public (3.3 per cent of "B" shares) and the United States public (10.7 per cent of "B" shares). The merger is in effect a re-organization that does not change the equity interests of the various companies.

CHAPTER II

PRODUCTION AND PROCESSING OF COPPER IN ZAMBIA AND WORLD-WIDE

A. Process of production

41. Two methods are currently in use in Zambia for the extraction of copper: open-cast and underground mining. 52/ Underground mining involves a variety of high capital expenditure techniques; the ore must be lifted from the base of the shaft and hauled up. Pumping costs are often high. A notable example is the Mufulira Mine. 53/ Open-cast mining extracts the ore by use of electric power, shovels or explosives and requires efficient oresburden stripping. This involves use of huge, large-capacity walking draglines and a boom long enough to swing the waste well outside the area to be worked. Adoption of a particular method depends on the nature of the ore. Open-pit mining is applied where the amount of overburden is proportionately small compared with the amount of extractable minerals. In Zambia, both methods of mining are widely used. In the open-cast mines such as Chingola, huge mechanical shovels and lorries with capacities up to 200 tonnes are employed. In the large underground copper mines, diesel-powered loaders pick up thousands of tonnes of rock and ore broken up in a single blasting operation, and trains of cars transport the broken material underground to the shafts for hoisting to the surface.

42. Though mechnical equipment opened the way for large-scale mining of low-grade ore, it did not address the problem of treatment. Heat alone - the conventional blast furnace - could not deal with a few particles of mineral scattered amongst large amounts of barren rock. Early methods for crushing and separating mineral particles used gravity; the process adopted all over the world today is flotation: grinding the ore to powder and stirring it in a suitable fluid, the minerals attach to air bubbles and float off while the wet grains of rock sink to the bottom. On the Copperbelt which is, typical of large-scale mining all over the world, the ore is crushed in several stages until the particles are less than a centimetre in size, then fed into ball mills, large horizontal revolving cylinders about half full of iron balls. Mixed with water, the crushed ore is ground to a fine powder and conveyed as pulp into flotation cells containing a mixture of chemicals including xanthates and frotters. The mineral particles attach themselves to bubbles and rise to the surface to be skimmed off, while the waste material sinks and is discarded as tailings. Next, most of the water is removed from the concentrated mineral which is then ready to go to the smelter.

52/ For a fairly good description of the various Zambian copper mines see Zambia's Mining Industry: the first 50 years, produced by Roan Consolidated Mines Ltd. (1978).

53/ This brought tragedy to Mufulira in 1970 a 'cave-in' of 1 million metric tons of water, sand and mud caused the loss of ninety-nine lives. See Economic Report issued by the Zambian Ministry of Finance, (1972) p. 195.

43. The principle in heat treatment of copper, the predominant method in the Copperbelt, is similar to processes used in ancient times; 54/ it has in practice, been modified and expanded to develop from a handicraft to its present industrial scale. In a typical copperbelt smelter, the concentrate is mixed with lime rock as a flux and charged into a reverberatory furnace, a box-like structure about 30m in length. Pulverised coal and or heavy fuel oil is injected with pre-heated air through burners at one end. At a temperature in excess of 1300°C, the charge is melted, and the molten material collects in the bottom of the furnace where it separates into two layers. The lower layer is a mixture of copper and iron sulphides known as matte, and the upper layer is waste material or slag consisting of a mixture of silicates. The matte is tapped into 20-tonne ladles through tapholes in the side wall of the furnace; slag is skimmed off through a higher tapholes. At Mufulira, concentrate can be melted into matte in an electric furnace, installed to take advantage of Zambia's abundant supplies of cheap hydro-electric power. The molten matter from the reverberatory furnace is transferred to converters, horizontal cylinders holding about 200 tonnes. Air is blown into the matte to oxidise the iron and sulphur content, which is fluxed away or blown off as a gas, leaving behind molten copper about 99.4 per cent pure. This is called blister copper, because as it solidifies, escaping residual gasses raise blisters on the surface. In former times, most copperbelt production was sold as blister; today, it undergoes the process of electrolytic refining which raises the purity of the metal by a further 0.57 per cent to 99.97 per cent.

44. For electrolytic refining the molten blister copper is transferred first to anode furnaces where the remaining sulphur is oxidised and excess oxygen removed by "poling". The latter consists of pushing large, green hardwood tree trunks into the molten copper. The practice, an ancient one that has remained unchanged over the centuries, is still the most simple and effective method for the last stage of fire-refining. In the electrolytic refining of copper, an electiric current is passed between plates of impure copper (anodes) and sheets of pure copper immersed in an acid copper-bearing solution. Copper is progressively dissolved from the anodes and transferred to the sheets of pure copper or cathodes. This process takes place in the refinery tankhouse which contains hundreds of load-lined tanks in which anodes and cathodes are hung alternately.

45. In its 24-day lifetime, each anode produces two cathodes. Some of the impurities from the anodes pass into the electrolyte, which is continuously cleaned; most of them, however, sink into a mud that accumulates at the bottom of the tanks. A newly-installed refinery at Ndola uses further electrolytic processing to produce small amounts of gold, silver and selenium as well as copper and other by-products from these slimes. The cathodes, which are now 99.97 per cent pure copper, may be sold in this form but are more usually melted and cast into wire bars, a process which reduces their purity to 99.95 per cent but prepares them for the production of rods and wire.

54/ Ancient workings exist in Zambia on the Copperbelt, See R. Hall, Zambia (New York, Praeger, 1965) p. 10.

46. Lower-grade oxide and sulphide ores are often treated by leaching from a finely crushed ore. In this process, the mineral is dissolved in a solution of sulphuric acid to form copper sulphate and then pumped to an electro-winning plant. Here the cells are similar to those employed in the anode refineries, but use lead anodes, starting sheet cathodes and a copper sulphate solution as the electrolyte. By electrolysis, copper of high purity is deposited from the electrolyte to the cathodes. This process and variations of it are used at Chingola and Chambeshi, which also have roasting plants to treat insoluble low-grade sulphide concentrate. Heated and aerated, the concentrates produce ferric oxide which is dumped, sulphur dioxide which escapes as a gas, and soluble copper sulphate for the leach plants. 55/

B. Geographical distribution of production

47. For some time, Britain was the main supplier of copper 56/ in the world market, but as demand for the metal increased, English supplies grew to be insufficient. Latin America became an important supplier, particularly Chile, from 1820 on. Later still the mineral wealth of the United States of America began to be exploited. The last decades of the nineteenth century saw the opening of new sources of raw materials in the world. Southern Africa is one of the regions which attracted British following gold discoveries between 1867 and 1886 in the Transvaal. 57/ This led to the eventual discovery and exploitation of Zambia's copper resources. Today Zambia ranks among the great copper producing countries of the world.

55/ There is a good description of the methods of mining and refining copper in Zambia's Mining Industry: the first 50 years, op. cit., pp. 38-43

56/ K. Warren, op. cit., p. 112.

57/ H.M. Hole, op. cit., p. 187.

Table 1. Mine production of copper in terms of recoverable copper content
(Thousands of Tonnes)

	1977	1978	1979	1980
U.S.A.	1364	1352	1449	1153
U.S.S.R.	1100	1140	1100	1150
Chile	1056	1036	1034	1072
Canada	759	647	583	716
Zambia	656	643	588	596
Zaire	482	424	378	496
Peru	341	365	365	365

Source: Zambia Mining Year Book, 1980.

48. As shown in Table 1, there are seven major copper producers in the world. Minor producers include, inter alia, Papua New Guinea, Mexico and Botswana.

C. Uses of copper

49. Copper, perhaps the earliest metal employed in the history of mankind, is widely distributed over the surface of the earth; it is soft, easily fashioned and yet resistant to corrosion; it can be hardened by admixutre of many other metals. Copper formed the basis of the early bronze age civilizations in the Near East. It was reputedly used with bronze in Egypt as early as 3 500 b.c., in Mesopotamia by 3 000 b.c. and in China at least as early as 1 500 B.C. 58/ Copper was smelted in Central Africa by local smiths as early as 1591. The first known reference to copper mining in this general portion of Central Africa was made by Fillipo Pigiafetta in his book "Report on the Kingdom of Congo" 1591. 59/ From about the eighteenth century, the inhabitants of Zambia and Katanga exported smelted copper in the form of bangles or crosses to ports on both Atlantic and Indian Ocean coasts of Africa. 60/ Africans used iron for their tools but copper

58/ K. Warren, op. cit., p. 112.

59/ F. Pigiafetta, A report on the Kingdom of Congo, 1591 (Reprinted New York; Negroes University Press, 1969); originally published in 1881 by John Murray, Longon.

60/ R. Hall, op. cit., p. 10.

was particularly important for ornaments and as a means of exchange. 61/ The presence and use of the metal in Central Africa was known to the earliest explorers. 62/ The discovery of the mines by white prospectors was in the majority of cases made easier by the existence of earlier native workings.

50. In Europe, the copper industry received a considerable impetus with the invention of the gun powder and the introduction of bronze guns. Copper was also used extensively in the form of wire for wool-cards and thus had an important part in the expansion of the English cloth industry in the sixteenth century. 63/ In the second half of the eighteenth century industrial development took a further leap forward, steam power replaced wind and water power and copper was once again indispensable to the industrialist. The metal was made into brass cylinders for pumps and engines. It was used for pumping and sanitation equipment in the new industrial towns, In the nineteenth century further new uses were discovered for the metal. Copper has a very high degree of thermal and electric conductivity and therefore found a place in the new electrical industry. Builders first used it for lighting conductors. From 1837 onwards, with the introduction of the telegraph, copper was fashioned into conductors and wires. In 1880 the first copper cable linked Britain and France; fifteen years later the first satisfactory cable spanned the Atlantic. 64/ Finally electric machines came into being, and copper became an indispensable raw material in their production. Except in times of recession, the demand for copper continues to expand, contributing to the rapid growth of industry in the developed world.

51. Today the metal is primarily used in the production of copper wire and electrical products, or for various alloys like brass and bronze. About one quarter of the world's copper goes into the manufacture of electrical equipment such as motors, generators and switchboards. Another 20 per cent of all copper produced is used for other electrical purposes such as power and light transmission, telephone and telegrpah transmission, radio and television, refrigerators and air conditioning systems. In addition, it can be assumed that a further 10 per cent, used for the manufacture of rods and wire, finds its way into electrical applications or equipment of one sort or another. Thus electrical uses probably account for about one-half of the world's consumption of copper. The building industry takes a considerable proportion of the balance, about ten per cent of total production, for pipes for plumbing and central heating, strip and sheet for damp-proof courses, roof coverings, weathering, flashings, gutterings and leaders, beadings, curtain rails, window frames and fascias.

61/ L. Gann, "Northern Rhodesia Copper Industry and the World of Copper, 1923-52" Rhodes Livingstone Journal, 18 (1955) p.1.

62/ D. Livingstone, Missionary Travels and Researches in South Africa (London, Murray, 1837).

63/ Davey, The Northern Copper (B.S.A.) Company Ltd., "Report on the Company's Properties" (1905) p. 23.

64/ K. Warren, Op. cit., p. 114 and Mining Mirror, December, 1973, p. 7.

52. The automobile industry consumes a similar amount, mostly in the form of piping and strip for radiators. Shell and cartridge cases represent a fluctuating demand for copper; even in times of peace, this probably absorbs two per cent of available supplies. The balance of the world's copper is used for tubes for locomotive condensers, power stations, ships, chemical plants and machinery, plates for locomotive fire boxes, cylinders and tanks of all kinds, brewing vats, jam boilers and whisky stills, coins stampings and pressings, rods for screws, nuts and bolts, castings, usually in alloy form, for bushes and bearings, pump bodies, valves and many other engineering uses. Finally a certain proportion is transformed into copper chemicals for use as insecticides and sugicides and in the paint and glue industries. 65/ Whether copper will continue to be a product of great significance and value to the world basically depends on three factors: world demand, supply trends in the world and movements in the world copper price. World demand will depend in turn on a host of factors, including development of utilisation techniques and trends in supply and processing of competetive metals such as aluminium.

53. On the balance, technical developments may have a negative influence as improvements in telephone engineering, for example, are reducing the volume of copper wire needed for a given message, while increased use of microwave techniques and satellites is cutting down the need for long distance cables. The threat posed by aluminium, a relatively new metal is very powerful. Its uses have not yet been fully explored but already show surprising flexibility. One hundred years ago aluminium was a commercial nonentity in the metallurgical world. 66/ It was combined with copper to form aluminium bronze and for ornaments, its other uses were specialized, such as for manufacture in building and bridge work. Furthermore, bauxite is plentiful in the earth's crust and an innovation which materially reduces the currently expensive cost of processing would have a major impact on the demand for copper.

65/ Optima, volume 5 No. 1 p. 26.

66/ K. Warren, op. cit., p. 83.

CHAPTER III

THE ROLE OF COPPER IN THE ZAMBIAN ECONOMY

54. The Zambian copper mining industry is of tremendous importance to the country's economy. With a capital investment exceeding K1 130 million, 67/ it is the major earner for the country, and its effects are felt even in the remotest districts. Health, education, communications as well as the cash flow from towns to rural villages, result from the shared proceeds of mining operations. As the table below shows, the industry accounts for a significant part of the net domestic product.

Table 2. Contribution of mining industry to domestic product

Year	Gross Domestic Product (Million Kwacha)	Mining Industry Contribution (Million Kwacha)	%
1977	2 024	223	11
1978	2 259	271	12
1979	2 566	450	18
1980	3 038	520	17

Source: Mining Year Book (1980)

55. Copper and other minerals are the country's major exports. The table below gives the value of copper exports in relation to Zambia's total exports.

Table 3. Contribution of copper to exports

Year	Value of Domestic Exports (Million Kwacha)	Value of copper exports (Million Kwacha	%
1976	749	705	94
1977	706	661	94
1978	676	633	94
1979	1 073	1 034	96
1980	1 004	960	94

Source: Mining Year Book (1980)

67/ At the time of publication, US$ 100 was equal to 1.34 Kwacha (K 1.34).

56. The copper mines are among the leading employers in the whole of Zambia. The industry hires approximately 15 per cent of all cash wage receipts in the country.

Table 4. Mining industry labour strength

Year	Expatriate	Zambian
1977	3 609	55 446
1978	3 245	53 437
1979	2 694	52 831
1980	2 485	55 258

Source: Mining Year Book (1980).

57. The preceeding tables provide some idea of the overriding importance of the copper mining industry to the economy of Zambia. There are probably very few countries in the world that are as dependent on the production and price of one commodity as Zambia is on copper.

58. The importance of copper in the Zambian society transcends its economic value; it has social and political significance as well. The process of industrialization, whether generated by political or economic policies, is widely associated with rural to urban migration, a result of the combination of attraction of urban centres and economic pressures. About 40 per cent of Zambia's population of 5 million inhabit urban areas; some 50 per cent of this group are on the Copperbelt. Most of the migration to this area came as a direct result of mining labour requirements.

CHAPTER IV

DISTRIBUTION OF COSTS AND BENEFITS FROM THE COPPER INDUSTRY

59. It is difficult to determine with accuracy the structure of distribution of benefits from the copper industry in Zambia. This arises in part from the lack of relevant data necessary for empirical assessments and computations. Therefore, the following examines marketing, distribution and taxation structures as the basis for determining how the benefits from the industry are distributed.

A. Marketing of copper

60. Zambia's copper is sold in a score of countries world-wide. Most of it is shipped out of Africa through the port of Dar es Salaam via the Tanzania-Zambia railway line. Until 1935, the entire production was exported as blister copper of about 99.5 per cent purity. Today, most of the Copperbelt production is electrolytically refined to about 99.9 per cent purity.

61. Prior to 1969, Roan Selection Trust (RST) and the Anglo-American Corporation (in Zambia, Zamanglo) handled sales on their own behalf as they owned the mines. Following nationalizations in 1969, the two companies were given marketing contracts. 68/ Under the original contracts, they provided the mining companies with all marketing facilities; they were exclusive agents for the mines in every country; and they performed their work through existing sales facilities. The contracts ensured that there would be no government interference in sales and marketing activities and were dependent on the redemption of the Bonds and Loan Stock; they were granted for a period of 10 years, and could thereafter be ended on two years notice or upon redemption of the bonds and loan stock, whichever was later. The above contracts were terminated on 31 August 1973. A local company, the Metal Marketing Corporation of Zambia, was established to market all metals and minerals produced in Zambia.

62. While acting as agents, RST and Zamanglo were remunerated at 0.75 per cent of gross sales proceeds of all copper metal and 2.5 per cent on cobalt sales. They retained Anner sales and RSTIM as sub-agents which operated closely with in-house, sister merchanting companies, Anglo Chemical and Ore and Ametalco Trading; the latter are both London Metal Exchange trading companies. This ensured that the same companies controlled production, distribution and marketing. The Zambian Government found that these agreements were working against the interests of the country. 69/ There were four ways in which the companies could

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68/ Proposals for the merger of Bancroft Mines Ltd., Nchanga Consolidated Copper Mines Ltd., Rhokana Copper Refineries Ltd., and the acquisition of 51 per cent interest there in by ZIMCO issued by Anglo-American Corporation (Central Africa) Ltd., dated 27th April 1970.

69/ The President of Zambia stated this at a press conference on 31 of August 1973. Times of Zambia, 1 September 1973.

divert proceeds. A year's production of copper is usually contracted for sale long before the beginning of the year. However, this practice carries with it the potential of default in cases of strikes, transportation problems or other unforseable events. To protect themselves, the marketing companies would contract about 80-90 per cent of planned production to "firm" end-use outlets. The balance, 10 - 20 per cent, would be contracted on a bolster basis to the affiliated merchanting companies. If and when the merchanting companies received the metal, they sold it on an ad hoc basis, thereby realising prevailing ad hoc premiums which could be as high as $50 per ton.

63. The copper consuming countries were grouped into two categories: credit risk countries, or consumers supposedly likely to default on payment for copper delivered; and non-credit risk countries. Contracts with the latter countries were made directly between marketing companies and fabricators, and prices were London Metal Exchange prices C.I.F. at main European or Japanese ports. But contracts with the first group of countries were made first with the in-House merchanting companies, who in turn resold the metal to the fabricators at London Metal Exchange prices plus cost of insurance and freight. The price differential sometimes as high as $80 per ton, accrued to Zamanglo and RST private accounts. The companies argued that this represented a fee to protect them from credit risk; in fact, risks were limited by the opening of irrevocable letters of credit long before each shipment was made. Because of the uncertainties the market place, fabricators, particularly in distant countries such as South America, tend to be conservative in their copper purchases so as to avoid the high cost of idle inventories. Fabricators in Western Europe however, overbuy as a matter of habit because of the availability of the London Metal Exchange warehouses. Thus a fabricator in China in short supply of copper would contact some London Metal Exchange merchants who would sell the metal at L.M.E. prices plus prevailing ad hoc premium and cost of freight and insurance. The merchant would subsequently arrange for the copper to be shipped from Zambia while he made his payment to the in-house merchant.

64. Other types of practices which worked to Zambia's detriment involved quality of metal and time of delivery. A non-critical user, a brassmill for instance, would be persuaded to accept delivery of 102-quality copper, thus freeing the high quality product for selective customers fine wire drawers, for instance, willing to pay a premium price. A customer with large inventories would be persuaded to accept delivery at a later date, thus freeing the shipment for a customer requiring immediate delivery at a premium price. Impure copper was also sold at a discount to affiliated merchant houses and, in turn, resold to refineries in Europe and elsewhere. 70/

70/ These problems are discussed by M. Munasangu, Sovereignty over natural resources with emphasis on African States, S.J.D. Thesis, University of Virginia, 1981.

65. At present the state-owned company Metal Marketing Corporation Limited (MEMACO) handles all copper sales for Zambia. This has increased the government's involvement in the marketing of copper to the point of giving it complete control over the sale of all copper produced in the country. In September of each year, the mining companies, the Ministry of Finance and the Bank of Zambia meet with MEMACO officials to discuss proposals for the sale of copper in the coming year, MEMACO's proposals are drawn up from observation of the market and other producers. Mining companies, for their part, submit production estimates. Once terms have been approved, MEMACO can negotiate with buyers. It then gives its agents terms for sales for the coming year, for forwarding to customers. Meetings are then arranged between customers and MEMACO for direct negotiations. Agreements are drawn up. While London Metal Exchange prices form the basis in pricing, contracts include premiums for quality, insurance and shipping charges. This is essentially because LME quotations are highly volatile, short-term prices that change twice daily so as closely to reflect the supply and demand situation. The United States Producers have since 1965 had their own domestic prices which are more stable than those or LME. 71/

Zambia sells most of its copper to countries shown below:

Table 5. Copper sales to leading customer countries

Country	Volume of sales (thousands of tons)			
	1976	1977	1978	1979
Japan	125	127	123	143
France	56	66	63	87
West Germany	122	107	89	75
United Kingdom	93	101	79	72
Italy	74	73	51	56
India	38	13	28	42
U.S.A.	108	57	41	22
China	20	23	22	21

Source: Zambia Mining Year Book (1979)

B. Pre-1970 taxation of the copper industry

66. Governments in most mining countries tend to exploit the fiscal capacity of holders of mining rights to their full extent Zambia is no exception. This leads to a variety of fiscal measures. Prior to 1969 holders of mining rights in Zambia were subject to three main taxes, the royalty, the export tax and the income tax.

71/ K. Warren, op. cit., p. 137

1. Royalty

67. As used here, a "royalty" describes the rent or tax payable to the owner of the minerals purely on the basis of ownership. Until 1964, the royalty in Zambia was fixed by and payable to the British South Africa Company. 72/ It represented a levy of 13.5 per cent of the price of copper less K16 per long ton produced. 73/ The reduction of K16 was intended to eliminate royalty when the price of copper was low. Thus the formula exacted no taxation at a price of less than K118.52 per long ton.

68. Following independence, the Zambian Government continued to impose the tax for some time, largely because it proved very profitable in terms of actual government revenue. By 1966, most mining companies were paying an average of £87.86 royalty per short ton, which brought in an appreciable amount of income to the state. 74/ The decision to uphold the tax was also political in nature: the government was not very sympathetic to mining companies on this issue, as they had done little about it under the British South Africa Company. 75/

69. The figure established by the royalty formula in the 1930s bore little relation to modern costs of production. 76/ The government always received the same royalty for each long ton of mineral produced regardless of great fluctuations in cost of manufacture to the miner either in different mines or in different shafts of a single mine. In 1966, for instance, the average cost of transportation from miner to customer was £ 50 per ton. 77/

70. The price used in calculating the tax was an average of eight prices on the London Metal Exchange at the time of production; this was frequently unrelated to the receipts reported by the companies. In addition, it had risen beyond the 1930 figures, as indicated in the comparison of two periods below.

72/ The Royalty was incorporated in the prospecting licence. It became payable to the Zambian government by virtue of the Mining Ordinance (Amendment) Act. No. 5 of 1965.

73/ Prospecting Licence Condition No. 14.

74/ In 1966 for instance the mines paid a total sum of £37 324 126 in royalty payments only. See Copper Service Bureau, Copperbelt of Zambia Mining Industry Year Book, 1966

75/ K. Kaunda, Towards Complete Independence Zambia, loc. cit., p. 35. The President remarked about this. This was denied publicly by one of the companies. Roan Selection Trust Ltd. stated that it had been opposed to it for years. ((See statement by the Chairman, August 22, 1969).

76/ Imperial Institute, Mining Royalties and Rents in the British Empire, 1936, p. 35.

77/ Mines Industrial Corporation, Mining Year Book of Zambia, 1974. p. 35.

Table 6. Average year prices per long ton of copper (London Metal Exchange)

1965 - 1968		1947 - 1951	
Year	Price	Year	Price
1965	£541	1947	£130.6
1966	£411	1948	£134.0
1967	£517	1949	£133.0
1968	£611	1950	£179.0

Source: Zambia Mining Year Book, 1974 and Report of the Commission of Permanent Sovereignty over Natural wealth and Resources, United Nations, 1962, p. 165.

71. The London Metal Exchange price was much higher than the actual price at which the mining companies made their sales. As a tax on production, the royalty constituted a direct operating cost for the mines on each ton of copper produced, and thus made it unprofitable to exploit every type of ore because of such factors as quality, position and grade. In 1963, for instance, the average world cost for producing one long ton of primary refined copper was about K330. 78/ Zambia's average cost in the same year was very close, at K320; it included K 46 per long ton for transport and royalties averaging K48 per long ton. 79/

72. Furthermore, when viewed as an additional cost, the royalty could prevent development of an otherwise profitable mine by reducing or eliminating potential profits. This was a real problem for a high-cost mine like Bancroft, which lost K9.18 per long ton in 1967 after paying K102.50 per long ton royalty. 80/ Any tax reduces the rate of return on an investment; a profit-oriented tax however, cannot eliminate a profit whereas a royalty can. Royalty also affected

78/ R. Prain, "Some Thoughts on Copper Production" Selected Papers, 1963 - 1967, Roan Selection Trust, 1968, p. 21.

79/ Ibid.

80/ Copperbelt of Zambia Mining Year Book, 1963, p. 14. A mine could however have royalty remitted as did Broken Hill at times. The conditions to this procedure were such that it still left the mine with a zero profit and that remittance of royalty was not certain before hand.

the recovery rate of minerals. 81/ As an added production expense, it pushed the cost of marginal ores over the cut-off point, with the result that they were considered waste. To a large extent the stage was the loser, as lower grades ores that were excluded from production by the royalty may never be mined; it would only have been possible or profitable to mine them at the same time as higher grade ores.

Table 7. Copper royalty payment compared with ore grades 1968

Mine	Copper Subject to Royalty	Ore Grade	Average Royalty per ton
Bancroft	55 919	3.40	81.84
Chambeshi	21 542	2.70	88.52
Chibuluma	25 505	2.29	89.00
Luanshya	103 729	1.90	88.85
Mufulira	197 979	2.47	87.91
Nchanga	225 337	2.57	88.09
Ronkana	103 299	2.11	89.11

Source: Copperbelt of Zambia, Mining Year Book, 1969.

73. The Royalty was also inequitable between mines in that it took a higher proportion of profits from the less profitable mines. 82/ Although the major mining groups in Zambia contain both high and low cost mines, the individual mines also have other shareholders who were unfairly treated by the royalty.

74. With the rise cost of heavy machinery and other inputs required in the production of minerals, the royalty had the effect over a period of time of reducing the profit margin of sustaining mines. Quite apart from its influence on profitability, the royalty also had an influence on other spheres of mining such as exploration: there would be no point in pursuing any discovery of mineralization below certain grades as these would be uneconomic.

81/ This meant that minerals that could be economic to mine in other countries would be uneconomic to mine in Zambia. A Phillipine Corporation is known to have been mining 74 per cent copper ore on Martinique Island which would have been impossible in Zambia with royalty. Roan Selection Trust, Bulletin, 1968.

82/ Between the highest and lowest production costs there is a variation of about K3 per long ton.

75. One solution might have been to exempt very long-grade ores from royalty tax. The problem, however, is that high-grade mines are not necessarily the cheapest producers: Bancroft is a high-cost mine but has the highest grade, while Luanshya with one of the lowest grades is a low-cost mine. This is sometimes due to the fact that low-grade mines use open-cast techniques; advances in production machinery have offset the increasing cost of labour as well as the decline in grade, resulting in a static labour cost per pound of minerals. 83/

76. Another solution is to stop imposing a uniform rate, for all mines or any group of them, on a particular mineral within a country. Although this is logical in economic terms, political and administrative factors such as arithmetical complications in administering different rates for different ores prevent mineral owners from taking this course. A third solution is to integrate royalty rates with some measure of profitability; the final possibility is to abandon royalty as a charge on production and devise another form of taxation on the ore.

2. Export tax

77. Another levy was the export tax, which was charged, levied and collected on every long ton of finished copper exported. 84/ The rate of the tax was 40 per cent of the price of copper per long ton of copper above the price of k600 per ton. No export tax was payable when the price of copper was below K600. It was introduced in April 1966, when producer prices dropped, in order for the Government to earn a large share of ensuing windfall profits, 85/ and was moderately successful in this respect. 86/ Since it was charged on exports and virtually all production of minerals in Zambia is exported, it was in effect a tax on production. Furthermore, it, too, took no account of cost, so it simply compounded the ill effects of the royalty.

83/ In 1965 in the United States, mines with less than 1 per cent grade showed an average cost of 17 cents per lb., those with 1-2 per cent showed 22 cents per pound and those over 2 per cent showed 24 cents per pound, Northern Miner Press Ltd., Mining Explained, 1968, p. 191.

84/ Copper (Export Tax) Act, Chapter 660 of the Laws of Zambia. The Minister of Finance could grant exemption to any person from liability to pay export tax.

85/ Previously the Zambian Companies had been selling copper at a producer price which was much lower than the London Metal Exchange Market. This was mainly to counter the threat of substitution for copper by lower priced metals. In 1966 for example, they sold copper at £336 ton while the market price was £700 per ton. See R. Sklar, Corporate Power in an African Country: the Political Impact of Multinational Mining Companies in Zambia (Berkeley, California, University of California Press, 1975).

86/ In 1968 alone the mines paid £65 185 585, in export tax alone, See Copperbelt of Zambia Mining Year Book, 1969, p. 34.

3. Income tax

78. The third tax levied was income tax. Miners were allowed to claim for reasonable depreciation on any machinery arising out of its use or employment in the trade. Although company tax was then introduced, its application to the mining industry was moderated by granting mining allowances. Just prior to the change in the structure, income tax charged on profits at the rate of 37.5 per cent of the first K200 000 of profits and 45 per cent of the remainder. 87/

79. In computing profits for tax purposes, a deduction was allowed for expenditure on surveys, boreholes, trenches, pits and other prospecting or exploratory works undertaken to acquire the right to mine minerals or incurred on a mining location in the country. 88/ Also allowed were incidental expenditures, provided their sum total did not exceed K200 000 in any one year. Separate and distinct mining operations in non-contiguous mines were allowed deductions calculated separately according to the approved estimated life of each mine. Miners could elect to deduct such expenditures on income from a producing mine. Upon cessation of mining operations, the miner could deduct his unredeemed capital expenditures. 89/

80. In addition to the above deductions a miner was allowed a redemption allowance at the rate of 2 per cent. It was, however, not permitted for companies that were liable to be taxed outside Zambia on income from mining operations carried within Zambia in respect to any income subject to a deduction or depletion allowance. 90/ Where such an allowance was made, the depletion allowance was not to exceed Zambia's allowance. No depletion allowance was granted to a person when the amount due according to the formula exceeded the income attributable to mining operations. The effect of the export and royalty tax system discussed earlier was to render these capital allowances somewhat ineffective as can be seen in the resultant level of mining activity.

81. Although increased production of existing mines can quickly result in marginal increases in capacity, the gestion period of a new mine can extend to as much as seven years. Mining companies attribute lack of mineral development on the tax structure alone. 91/ Without denying that this does represent an important limitation, it is by no means the only one factor hindering growth. Although they refuted this in 1968, it can be demonstrated that companies have for a long time had the practice of distributing most of their dispensable earning as dividends abroad. This can be shown by examining the period 1945 - 1958, prior to impact of the royalty system and to introduction of the export tax. As

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87/ Income Tax Proclamation, 1926, S.5.

88/ Income Tax (Amendment) Act No. 25 of 1970 of 1970, S. 19(1).

89/ Ibids. 21 (1).

90/ Income Tax Act, op. cit., S. 33.

91/ K. Kaunda blamed the inadequacy of mining development on the investment policies of the companies, K. Kaunda, Zambia Towards Economic Independence, 1970, p. 45-46. But both mining groups blamed the problem on tax. See Anglo-American Corporation of South Africa Ltd., Statement by the Chairman, November 1968, p. 7.

the mining companies rightly suspected that nationalization would occur sooner or later, they were not particularly anxious to plough profits back into capital investment liable to be expropriated in the near future, at an undefined level of compensation.

Table 8. Account of mining industry showing investments and dividends 1945 - 1957

Year	Gross Investment	Flow of direct private investment into federation of Rhodesia and Nyasaland	Dividends paid abroad
1945	1.09	-	1.7
1946	0.9	-	2.8
1947	2.4	-	8.6
1948	2.9	-	9.3
1949	6.6	-	11.1
1950	8.5	-	18.6
1951	11.4	-	22.0
1952	15.2	-	20.3
1953	16.5	-	17.9
1954	14.9	-	18.3
1955	21.4	3.4	20.8
1956	18.0	2.5	25.5
1957	-	2.9	-

Source: Report of the Commission on Permanent Sovereignty over Natural Resources, United Nations, 1962, p. 170.

C. Post - legislation

1. Mineral tax

82. In 1969, in an effort to nationalize developments in the system of mining rights, the government charged the taxes imposed on holders of mining rights. Both the royalty and the export tax were abolished and replaced by a single mineral tax. 92/ The new levy, entirely based on profits, is charged at the rate of 51 per cent of profits for copper, 13 per cent for lead, zinc and amethyst and 20 per cent for gold. Mining rights holders continue to pay income tax of 45 per cent on their profits after payment of mineral tax, giving a rate of tax on profits of 73.05 per cent for copper. 93/

92/ Mineral Tax Act, 1970.

93/ Ibid. This is very nearly the same as the sum total of previous taxes except that the base changed.

83. Section 7 of the Mineral Tax Act is also particularly significant. It provides "that a company shall be entitled to a refund of mineral tax in respect of any prescribed period if its average income in the prescribed period is less than twelve per centum of its average equity in the period." Where a company is entitled to a refund of mineral tax, the amount of the refund is the difference between 12 per cent of its average equity in the prescribed period. The average equity is the sum total of the equity in each charge year.

84. The implication of this refund provision in the case of new copper mines is that there is, in fact, a sliding scale in the overall rate of taxation ranging from a minimum of 22.09 per cent when all mineral tax is refunded, to a maximum of 73.05 per cent as pointed out above.

85. Most mining companies tend to feel that the protection of 12 per cent level of profit is actually of no use, since most of them would not undertake a venture that indicated such a low yield. They argue that since they can earn that level of profit in a bank at no risk, they have little incentive to go into mining, a heavy risk industry. Also, since this is an exemption rather than a repayment, the taxable profit would bear income tax at 45 per cent where the whole of the mineral tax is exempted. A mine with this exemption would thus be at a disadvantage compared with a mine without it, if the mine were not earning profits less than 12 per cent of equity.

86. The government, on the other hand, believes that the refund system is of great incentive value to both potential and existing investors. The exact value of this concession cannot be generalized since it depends largely on the debt equity ratio of the initial investment. The higher the debt proportion, the less the net profit on which the refund may be claimed. In normal times, there has not been a single occasion when the average income of any mining company has fallen below 12 per cent of its average equity; this year, however, it appears that no mining company will pay any tax to the state because of the extremely low commodity prices brought about by the current world recession. 94/

87. A flat rate tax of 73 per cent based on profit clearly removes most of the anomalies discussed earlier. All mines now pay the same percentage of profit in tax, which can no longer exceed 100 per cent of profits nor be charged on a mine making no profits at all. The percentage of profits paid in taxation is constant despite charges in metal prices, since marginal and average rates of tax are now identical. In addition, the net income-related tax has a minimal economic effect on the level and rate of recovery: the tax liability approaches zero when the extractive industry reaches out-off point, thus operators are no longer discouraged from developing marginal ores.

94/ Daniel, The Guradian, 31 March 1976, p. 21.

2. Capital expenditure

88. Other new measures involve mining allowances. Companies operating mines which commenced production after 1 April 1975 may offset capital expenditure in the year in which the expenditure takes place. Similar allowances for established companies are granted according to the length of time a mine has been in production. 95/ They are provisionally permitted to claim allowances on the basis of the legislation which existed prior to the enactment of the Income Tax (Amendment) Act of 1970.

89. In the case of pre-1953 mines, of which there are four, expenditures must be allowed under specified headings and are calculated at fixed rates, as follows: plant and machinery: 40 per cent in year of purchase, 20 per cent on diminishing balance thereafter; heavy earth-moving mechanical equipment: 50 per cent in year of purchase, 30 per cent on diminishing balance thereafter; industrial buildings: 15 per cent in year of construction, 5 per cent on original cost thereafter; low cost housing: 20 per cent in year of construction, 10 per cent on original cost thereafter. For capital expenditures not covered above, the allowable rate over the life of the mine is one-twentieth of diminishing balance.

90. The main point on which the treatment of allowances for old mines seems to differ from that of the new mines is their timing. In the final analysis, all capital expenditures for both categories of mines are written off against taxable profits. The basis for the difference seems to be that to allow both categories of mines to deduct the whole of their capital expenditure in the year incurred would enable established companies to deduct their expenditures on new projects from their tax liabilities for current profits. This advantage would not be available for new entrants.

91. The Income Tax Act of 1973 permits a deduction against both mineral and income tax. Capital expenditure, for its part, has been extended beyond its pre-1970 concept to encompass costs of buildings, works, railway lines or equipment. 96/ It includes shaft sinking, money paid on the purchase or payment of a premium for the use of any patent, design, trademark, process or expenditure of a similar nature, and expenses incurred prior to the commencement of production

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95/ In 1970 Income Tax (Amendment) Act all mines were permitted to deduct the whole of the capital expenditure in the year incurred. But in 1973 the Income Tax Act was further amended by the Income Tax (Amendment) Act of 1973. The amendment withdrew the 100 per cent immediate deduction from established mines. This is now incorporated in the Income Tax (Amendment) Act 1975.

96/ Income Tax (Amendment) Act No. 10 of 1975, S.19b(a).

or during any period of non-production on preliminary surveys, boreholes, development or management, including any interest payable on loans used for mining purposes. It does not, however, cover non-capital expenditures such as labour. Previously, the system of capital allowances varied according to the category of expenditure and could only be offset against income tax, not against royalty or export tax.

92. The amount of capital spending that is effectively paid for by the government under this system is now 73 per cent for all mines compared with 45 per cent previously; in addition the tax relief is available immediately and not over a period of years, in the case of all companies with the exception of Nchanga Consolidated Copper Mines and Roan Consolidated Mines Ltd.; Section 21(1) of the Income Tax (Amendment) Act of 1970 provides that a person or company incurring the expenditure for prospecting and exploration may either retain it as a deduction or, in the case of, a company, renounce the deduction in favour of its shareholders. Thus any person who contributes money to a prospecting enterprise can offset the expenditure against current taxable income in Zambia instead of waiting to offset it against ultimate profits. If the contributor is a non-mining company, the value of the immediate deduction in terms of tax paid will only be 45 per cent as it can only be offset against income tax.

93. Expenditures retained for tax purposes by a prospecting company also may be renounced in favour of a subsequently-formed mining company of which it is a shareholder. 97/ Thus, all expenditures of a prospecting company that finds a workable deposit (including expenditure in areas outside the location of the ultimate mine) can be offset against profits of the mine. This is attractive to groups of investors who prospect in several areas at once decide to form a mining company to exploit a mine in one of the areas, and continue prospecting in other areas through the prospecting company. On the whole, this is acknowledged to be quite an incentive to mining rights holders.

94. The amount of capital effectively paid for by the government is increased if a mine is subsequently opened. Section 22 of the Income Tax (Amendment) Act of 1975 allows a new mine to deduct pre-production expenditure incurred in each charge year increased at a rate of 10 per cent per annum compounded for the period commencing with the first day of the charge year in which such pre-production expenditure is incurred, and ending with the last day of the charge year prior to the production charge year. This in effect means that the unamortized part of any pre-production expenditure and capital expenditure incurred during production would, for tax purposes, be increased by a factor of 10 per cent per annum until the first year in which the company is charged tax in respect of its mining income.

97/ Ibid., p. 23.

95. An owner of a mine who either owns or has the right to work a non-contiguous mine from which he had no production during the year, may elect to deduct the amount of capital expenditure incurred on that non-contiguous mine from his income derived from his other mining operations in the same year in which such capital expenditure is incurred. This certainly encourages expansion projects in the industry; if the tax position were otherwise with respect to contiguous mines, mining rights holders would be reluctant to develop new mines. The effect of this provision is to treat non-contiguous mines as though they were part of existing mining operations where there is actual production.

96. The government does, however, face problems with regard to capital allowances. First, these are likely to be easily inflated, especially if machinery is imported. In addition, they have the effect of encouraging capital rather than labour-intensive mines which drain foreign exchange, reduce available employment and provide a way for companies to manipulate their costs to avoid tax.

97. Zambia does not grant a depletion allowance to the mining companies, as it would reduce the mining rights income upon which tax is assessed. Conceptually, it is argued that a depletion allowance is necessary since minerals are exhaustible and when depleted, the investment in the mine will have residual value. An allowance analogous to the depreciation on plant and equipment could be established to reflect the gradual depletion of the ore body. Under the Zambian system of mining tenure, however, the state owns the minerals; the capital being depleted is that of the state and therefore depletion allowances are unnecessary.

CHAPTER V

THE INTER-GOVERNMENTAL ORGANIZATION FOR COPPER EXPORTING COUNTRIES (CIPEC)

98. The Inter-governmental Organization for Copper Exporting Countries (CIPEC) was formed in 1967 subsequently to recommendations for greater government participation in the copper industry by a UNECA/FAO mission of 1963. 98/ The Inter-governmental Council for Copper Exporting Countries was established following a copper conference held in Zambia in 1969. The original group consisted of Zambia, Chile, Peru and Zaire. To day, the Council has a membership of 9 countries.

99. The primary objective of CIPEC is to co-ordinate and propose to governments of member countries individual or collective measures relating to the copper market, production process, expansion of consumption and any others that tend to fulfil the requirements set forth by the conference of ministers. Specific objectives are:

(a) to co-ordinate measures designed to foster, through expansion of the industry, dynamic and continuous growth of real earnings from copper and to ensure a real forecast of such earnings;

(b) to promote the harmonization of the decisions and policies of the member countries on problems relating to the production and marketing of copper;

(c) to obtain better and more complete information and appropriate advice on the production and marketing of copper for member countries;

(d) to combat the unilateral fixing of prices likely to be prejudicial to producing countries;

(e) to monitor the disposal and build-up of world copper stocks;

(f) to improve methods for drawing up sales contracts;

(g) to harmonize sales contracts among member countries. 99/

The organization consists of three institutions: a Conference of Ministers, a Governing Board and a copper information bureau.

98/ Economic Commission for Africa, Food and Agriculture, Organization, Economic Survey Mission on the Economic Development of Zambia UN/ECA/F.O/1964. See also K. Warren, Supra, p. 142.

99/ Other countries have joined as Associate Members. These include Australia, Papua-New Guinea, Botswana.

100. CIPEC had met with some success in the area of harmonization of marketing policies and techniques and coordination of political and commercial policies, but has made very little progress in the area of price stabilization, for a variety of reasons. Copper is a world metal and no single country holds monopoly over its sources and production. The amounts of copper actually traded on the world market are not very important because most of the available supply is controlled by a variety of long term contracts which diminishes the utility of fixing market prices.

101. Theoretically, price variations may to some extent be ironed out by the use of a buffer stock. Its effectiveness is limited, however, by the extent of co-operation between producers and consumers, by the finance which the buffer stock manager has at his disposal and by the wisdom with which he exercises his powers to buy and sell. A second devide is to restrict output. A danger with restriction schemes is that consumers may shift to alternative, more economical sources or to another material. Previous efforts to cut production have met with very little success.

102. CIPEC faces a number of additional. unrelated difficulties. To a large extent, the copper trade is dominated by a few transnational enterprises that control production, distribution and marketing. This is true in most copper producing countries, except those which have nationalized the industry. There are vast copper reserves in the world, and not all of them are in CIPEC countries. High prices invite substitution from competitive metals such as aluminium. The member countries are very dependent on copper. There are enormous differences in production costs among CIPEC members; there is also the problem that CIPEC members have ideological differences. The ultimate objective of CIPEC, however, remains the achievement of a producer price. Despite problems, the organization continues to work towards this global goal.

CHAPTER VI

GOVERNMENT CONTROL AND INVOLVEMENT IN THE COPPER INDUSTRY

103. Following attainment of independence in 1964, the Zambian government virtually confined its involvement in the industry to an increase in tax revenues from the mining companies. 100/ This was despite a 1963 United Nations Economic Commission recommendation for direct government participation in view of the significance of the industry in the economy, 101/ and despite the fact that in 1964 the existing mining companies had offered the government minority participation in their ventures. 102/ The government's attitude can be attributed to its unwillingness to compound the overall post-independence insecurity on the part of mining companies and their workers. 103/ Not unnaturally, the government itself lacked confidence in its ability to manage such a large enterprise. By 11 August 1969, however, the government of Zambia announced that it was nationalizing the mining industry to the extent of 51 per cent of equity shares. 104/

104. The 1969 policy change was largely due to the behaviour of foreign mining and non-mining firms in Zambia. In the period 1953 - 1963, when the country was still a British protectorate and a member of the Federation of Rhodesia and Nyasaland, secondary industry in the Federal Sector tended to concentrate in Southern Rhodesia; the North remained a supplier of revenue from the copper mining industry and a market for manufactured goods. In addition to Southern Rhodesian industries, those of South Africa also served Northern Rhodesia. The major mining companies, for instance, were subsidiaries of South African mining houses. It has thus been customary for the Zambian subsidiaries to be administered from the South. 105/

100/ The year after independence, an export tax was introduced and the income tax rate was increased. See Copper Export Tax Act, 1966 and Taxes charging and Amendment Act, 1965.

101/ U.N.E.C.A./F.A.O., Economic Survey Mission of the Economic Development of Zambia 39, U.N. Doc. E/CN.14/302.

102/ R. Prain, Address to the National Affairs Association, Lusaka, 1964.

103/ The government attributed its lack of action to the fact that the mines were too big. See K. Kaunda, Zambia's Economic Revolution, p. 50 (1968).

104/ K. Kaunda, Towards Complete Independence, loc. cit., p. 36.

105/ See Central African Research - 4 "The Significance of Zambia's New Economic Programme," 1 (1968).

105. Most foreign firms, mining and non-mining, looked to South Africa for supplies, and stock was brought up from Southern Rhodesia or South Africa as needed. After the Unilateral Declaration of Independence in Rhodesia the companies continued as before, although it became increasingly contrary to government policy, especially as Zambia responded to the United Nations call to impose sanctions on Rhodesia. 106/ The country had also been committed to reducing its dependence on imports from South Africa. Many companies appeared unwilling, however, to seek alternative sources of supply of goods in East Africa or elsewhere. They also demonstrated a marked reluctance to set up genuine separate company structures in Zambia: indeed, some branches had little more than a nominal existence and were only used to order imports from Britain which were off-loaded en route to Rhodesia to circumvent sanctions.

106. Political side-effects compounded these economic consequences. Africans had little opportunity to acquire managerial or technical expertise. During the colonial period, they could not obtain loan capital on the terms granted to Europeans, and various legal restrictions prevented them from advancing beyond certain professional levels. Until 1960 for example, Africans were barred from becoming apprentices. 107/ Academic limitations were also severe: at the time of independence, Zambia had only 960 Africans with school certificates and less than 100 graduates. 108/ As a result, mines were entirely staffed at senior levels by expatriates. In 1969, 40 000 Zambians were employed by mining companies, mostly as unskilled labourers, and about 7 000 expatriates held skilled jobs; only two Zambians, one indigenous and one expatriate who had taken Zambian nationality, sat on mining company boards. Efforts to Zambianise in the five years since independence had been largely unsuccessfully, as shown in the following chart.

Table 9. Expatriate labour strength in mining industry, 1965 - 1969

Year	Average Strength	Engagements	Resignations	Displaced by Zambianisation
1965	7 035	902	1 131	247
1966	5 981	1 213	1 403	360
1967	5 378	1 000	1 058	292
1968	4 845	1 088	1 124	178
1969	4 727	947	1 127	160

Source: Mining Year Book of Zambia (1969).

106/ Ibid.

107/ Ibid.

108/ U.N. Economic Survey, op. cit., p. 34.

107. In the years 1964 - 1969, the Zambian economy expanded rapidly; with the end of Federation, the return of control over the country's revenue made possible a great increase in government spending. Manufacturing developed at a fair pace, and its contribution to the gross domestic product rose significantly. 109/ The rapid expansion was inevitably accompanied by inflationary pressures that were aggravated by the desire of some companies to extract high profits, export them from a relatively small capital investment and rely extensively on local borrowing for the projects. Quite apart from the fact that local borrowing is in conflict with the interests of the host state, it also diminishes the credit available for domestic entrepreneurs.

108. There was no exchange control in the first few years of independence, and absolute freedom to export profits was used to the fullest. 110/ Some resident companies purchasing merchandise from parent organizations abroad added as much as one third on the cost price when making payments. This allowed them to remove capital at a still higher rate, while at the same time increasing Zambia's cost of living. This type of behaviour did much to worsen feelings against foreign companies within the country. The major reason for introduction of the policy of government participation was and still is, to ensure that mining rights holders operate within the framework of the overall economic and social goals of the country.

109. The policy is also borne out of a wish to limit outright foreign ownership and control of the mining industry, a wide-spread desire among developing countries particularly in relation to extractive industries. The need for domestic involvement can best be understood when it is realized that prior to 1969, there was no direct indigenous financial participation in mining activities. A limited amount of local capital had been invested in the big mining companies, and there were a few local companies exploiting minerals such as mica and limestone.

A. Terms of nationalization

110. The terms of nationalization were negotiated on behalf of the government by the Industrial Development Corporation Limited. The government, however, directed observance of certain principles in the negotiations:

(a) compensation was to be based on a fair value represented by the book value excluding business good will and future profits;

(b) compensation was to be paid out of future dividends. 111/

109/ See Central African Research, op. cit., p. 2.

110/ K. Kaunda, op. cit., p. 7.

111/ K. Kaunda, op. cit., p. 37.

111. There was very little external influence or pressure exerted on the Zambian government. 112/ Zambian Anglo-American Corporation Ltd. was principally owned by shareholders in South Africa and in the United Kingdom. Differences between Britain and Zambia following the Rhodesian Unilateral Declaration of Independence limited the effectiveness of British government influence; and South Africa could not exert any pressure in view of poor relations between the two countries. Roan Selection Trust Ltd., on the other hand, is mainly owned by American shareholders; in particular, 43 per cent of the shares and held by American Metal Climax. The American government showed little interest in putting any pressure on the Zambian government towards reasonable compensation terms. American Metal Climax Ltd., however, took a distinct interest, and the Roan Selection Trust negotiators were under constant pressure from New York to settle for the best terms they could obtain. 113/

112. Actual negotiations for nationalization went on smoothly and fairly quickly: agreement was reached within three months of the start of negotiations, and nationalization became effective on 1 January 1970. 114/ Representatives of the mining companies, especially Roan Selection Trust, were not happy with the government's directives that compensation should be based on book - value, arguing that since their accounting practices were conservative, the book value of assets would be well below their true worth. They requested compensation based on a "fair value". 115/ Roan Selection Trust Ltd. in particular made a much higher percentage profit on the book value of its assets than Anglo-American Corporation Ltd. did on its mines. For this reason, the former insisted that profitability be taken into account during negotiations.

113. The government refused to concede on this matter; it did agree, however, to treat the assets of RST's Luanshya mine, some of which could be regarded as new capital, differently, and acted accordingly when computing Roan Selection Trust Ltd.'s book value. 116/ The formal terms of the nationalization were signed on 24 December 1969. 117/ The Heads of Agreement are between the Zambian government and Industrial Development Corporation then a wholly-owned subsidiary of Zambia Industrial and Mining Corporation Ltd., a government company on the one hand and the Zambia Anglo-American Corporation Ltd.; and between the government and Industrial Development Corporation Ltd. and Roan Selection Trust Ltd. on the other. 118/ The two separate Heads of Agreement set out the terms on which the government of Zambia acquired a 51 per cent interest in the mining companies.

112/ Antony Martin, Minding their own Business: Zambia's Struggle Against Western Control (London, Hutchinson 1972) p. 176.

113/ R. Hall, The High Price of Principles: Kaunda and the White South (London, Hodder and Stoughton, 1969) p. 97.

114/ Mines Acquisition (Special Provisions) Act No. 28 of 1970, Supra, 2.

115/ A. Martin, op. cit., p. 169.

116/ Ibid.

117/ Mines Acquisition (Special Provisions) Act No. 28 of 1970, op. cit., p. 2.

118/ Ibid.

114. The Mines Acquisition (special provisions) Act of 1970 implemented the nationalization of the copper industry and the agreement reached pursuant to the nationalization. The effect of the act is to make many of the key terms of the Master Agreements part of the statute law of Zambia. In section 4 of the Act, the government unconditionally guaranteed that the Industrial Development Corporation would discharge its obligations as to payment of interest on and principal of any bond or stock entered into between it and the two mining companies. The same section authorised the Minister of Finance, on such terms and conditions as he thought fit, to guarantee any payment due to be made by the Industrial Development Corporation Ltd., under any trust deed or indenture by which the bonds or any of them are constituted, payment to any person within or outside Zambia, of any loan or debt due them by both or any of the mining companies, the constituent companies or an operating company, and the performance of such other obligations as he may deem necessary or expedient in relation to the Master Agreements or either of them or their implementation. 119/

115. Zambia Industrial and Mining Corporation acquired and subsequently transferred to the Mines Industrial Development Corporation a 51 per cent interest in the mining, smelting and refining operations of Roan Selection Trust Ltd. subsidiaries. This was effected by amalgamation of Luanshya Mines Limited and Mwinilunga Mines Limited with Mufulira Mines Limited which was subsequently renamed Roan Consolidated Mines Ltd., and the subsequent acquisition of 51 per cent of the shares of Roan Consolidated Mines by Zambia Industrial and Mining Corporation Ltd. Compensation was agreed at K84.15 million, to be paid in United States dollars. In the case of the Anglo-American Corporation Ltd., mines, the mining assets and liabilities of Nchanga Consolidated Copper Mines Ltd., Rhokana Copper Mines Ltd. and Rhokana Copper Refineries Ltd. were vested in Bancroft Mines Ltd., which was subsequently renamed Nchanga Consolidated Mines Ltd. were acquired by The Zambian Industrial and Mining Corporation Ltd.; compensation to the Anglo-American Corporation Limited was agreed at K125.766 million, payable in United States dollars.

116. The price for the assets was based on the "book value" as of 31 December 1969, 120/ with the exception discussed earlier of RST's Luanshya Mine. With regard to mode of payment, it was agreed to make payments out of future profits 121/ in other words, from the government's 51 per cent share in the companies. Payment for the 51 per cent interest in Roan Consolidated Mines Ltd. and Nchanga Mines Ltd. (formerly Zambian Anglo-American) was effected by issue of Zambia Industrial and Mining Corporation Ltd. bonds in the case of Roan Consolidated Mines Ltd., and Zambia Industrial and Mining Corporation Ltd. loan stock in the case of Nchanga Consolidated Mines Ltd. Both the Zambia Industrial and Mining Corporation 1978 bonds and 1982 loan stock were fully and unconditionally guaranteed by the Zambian government, freely negotiable and repayable in United States dollars. 122/

119/ Ibid., S. 4.

120/ See Master Agreement.

121/ Ibid.

122/ Ibid.

117. The government took a number of measures in connection with the terms of compensation. It was agreed that schemes of arrangement involved in the re-organization of the Zambia Anglo-American Corporation Ltd. and Roan Selection Trust Ltd., pursuant to acquisition by government of its 51 per cent interest, were exempt from all Zambian company law and stamp duty Act. 123/ The government also promised that the overall rate of tax payable by Roan Consolidated Mines Ltd. and Nchanga Consolidated Mines Ltd. would not increase nor would the companies be subject to tax on dividends so long as any part of the Zambian Industrial and Mining Corporation loan stock 1982 and the Zambian Industrial and Mining Corporation bonds 1978, as the case may be, were outstanding.

118. It promised that all payments made with respect to the bonds and loan stock would be exempt from all taxes in Zambia. In addition neither Roan Consolidated Mines Ltd. nor Nchanga Consolidated Mines Limited would be subject to any discriminatory stamp duty, tax, or import duty. 124/ The government also agreed to pass and subsequently passed legislation exempting from exchange control regulations all payments made with respect to the Zambia Industrial and Mining Corporation Ltd., bonds, loan stock and any dividends made on the remaining Roan Selection Trust Ltd. shares and Zambia Anglo-American Corporation Ltd. shares in Roan Consolidated Mines Ltd., and Nchanga Consolidated Mines Limited respectively. 125/

119. The government further concluded Management Agreements between Anglo-American Corporation Ltd. and Roan Selection Trust Ltd. on the one hand and the government of Zambia on the other. The objective was for these former owners to "provide the mining companies with all managerial, financial, commercial, technical and other services in order to maintain the business affairs and operations of (RCM and NCCM) in a manner no less efficient and standard no less than these before the take over, and which shall be directed towards the optimization of production and profit" 126/ of these companies and their subsidiaries. The services included planning services for production operations and capital expenditure; engineering and metallurgical services; expatriate staff recruitment; and purchasing in and outside Zambia. In the marketing of copper, Roan Selection Trust was the exclusive agent of R.C.M. in every country and could perform the work through existing sales facilities. In general the contracts ensured that there would be no government interference in the management of the companies. The contracts were drawn up for a minimum of ten years, to be terminated thereafter on two years' notice or until the redemption of the bonds and stock, whichever is the later.

123/ Mines Acquisition (Special Provisions Act), op. cit., S.5.

124/ See Income Tax (Special Provisions) Act 1970 and Income Tax* (Amendment) Act, 1970.

125/ Master Agreements.

126/ Ibid.

B. Cancellation of management and sales contracts

120. On 31 August 1973 the government announced that it was terminating the management agreements. 127/ This unilateral decision was a breach of the 1969 agreements under which unlawful cancellation of contracts prior to redemption rendered the bonds immediately repayable. The government paid all money due in bonds immediately. After protracted negotiations, agreements terminating the management contracts were signed on 15 November 1974 and 25 February 1975. The main compensation for the termination of the management contracts was a sum of K33 million. N.C.C.M. was to pay an indemnity to the Anglo-American Group for any amount the latter may become liable to pay as a result of terminating contracts entered into in the performance of duties under the 1970 agreements. This applied where the new government-owned marketing company did not take over such contracts. These agreements established Nchanga Consolidated Copper Mines Ltd. and Roan Consolidated Mines Ltd. as self-managing enterprises. A local company, the Metal Marketing Corporation of Zambia was established to market all metals and minerals produced in Zambia. 128/

127/ Times of Zambia, 1 September 1973.

128/ The Metal Marketing Corporation is incorporated under Zambian Company Law.

CONCLUSION

121. The preceeding sections have examined the development of the copper industry, its significance to the Zambian economy, the taxation on and marketing of copper in Zambia and the efforts by the government to participate in and gain control of the copper mining industry, in order to increase the country's wealth and generate tax revenues for the state. Zambia, like the other copper producing countries in the developing world, has serious problems with its copper industry. For the most part the mines in these countries were developed by large, privately-owned foreign companies which, through their ownership of other interests in the world, control export markets for copper.

122. The international copper market has always been characterized by a high degree of concentration and control. It is widely recognized that transnational corporations seek to maximize profits from their assets and mining connections. Their interests are often in conflict with efforts to achieve national development goals in the countries where the mines are located. Until recently, only four developing countries, Peru, Zambia, Chile and Zaire, had a major share of world's copper exports.

123. Foreign ownership of the Zambian copper industry ended with the 1970 nationalizations of copper mines. On the whole, the 1970 measures have increased government participation and improved its bargaining position in the copper industry. Although the effectiveness of the measures will depend on the efficiency of Zambian managerial and technical manpower, termination of management agreements with TNCs has laid a proper framework to secure control of the copper mining industry.

124. At various times, Zambia has had to conclude comprehensive contractual agreements relating to compensation for nationalization, marketing arrangements and management consultancy services. Zambia is not unique in this respect: most developing countries find these comprehensive contractual agreements with investors necessary when large scale mining projects are involved, for many different reasons. In some cases it is the wish of the host country and thus to its perceived benefit. In other cases, it appears that the special contractual relations arise out of necessity since the legislative framework in existence may be inadequate. Mining companies prefer this arrangement, partly as it offers them control and partly as it protects them from legislative and administrative requirements of the host country.

125. The bargaining position of most governments, particularly those in developing countries, has been strengthened through various declarations by the United Nations concerning the sovereignty of states over their natural resources. The international community has accepted these developments and negotiators are well placed to make references to these accepted norms when faced with unreasonable propositions from Transnational Corporations. Countries like Zambia do, however, make mistakes and conclude agreements which are later found to be operating against their interests. Although the most up-to-date devices and negotiating techniques could be made available to them, many

developing countries are not in a position to draw on these effectively. As a consequence, even if the investor could be persuaded to offer improved terms, the host country would not be equipped to negotiate this. A major factor in this is transnational corporations reluctance to surrender their traditionally favourable bargaining position.

126. It is important, therefore, that Zambia equip itself with the necessary skill and expertise which will secure the best terms in a given agreement. Negotiators must be adequately trained to do the job well: in mining negotiations, this implies that developments in all aspects of mining agreements, in particular fiscal and legal regimes, should be familiar to the negotiator. In this way a country like Zambia can minimize its disadvantages and maximize the benefits it can earn as a whole from operations of transnationals.